

REMARKS

Reconsideration and allowance of the present patent application based on the foregoing amendments and following remarks are respectfully traversed.

By this Amendment, claims 10 and 16-17 and the Abstract of the Disclosure are amended and claim 31 is newly added. Claims 10 and 16-17 are amended to correct minor clerical mistakes. Support for new claim 31 may be found, for example, in the embodiments described in paragraph [0015]. No new matter is added. Accordingly, after entry of this Amendment, claims 1-31 will remain pending in the patent application.

In the Office Action, the Abstract of the Disclosure was objected to. In response, a new abstract of the disclosure is attached hereto to overcome the objections. Accordingly, reconsideration and withdrawal of the objection to the Abstract of the Disclosure is respectfully requested.

Before addressing the claim rejections, Applicants wish to point out that the Official Action is not complete as to all matters because the Examiner has not clearly identified a ground of rejection for each claim. Applicants point out that a plurality of claims should never be grouped together in a common rejection, unless that rejection is equally applicable to all claims in the group, *per* MPEP 707.07(d).

Section MPEP 707.07(d) relates to the completeness and clarity of the Examiner's action and to the language to be used in rejecting claims. MPEP 707.07(d), first sentence, mandates that "where a claim is refused for any reason relating to the merits thereof ... [its] ground of rejection [should be] fully and clearly stated". (Emphasis added). Furthermore, MPEP 707.07(g), which also relates to the completeness and clarity of the Examiner's action, mandates that "where a major technical rejection is proper, it should be stated with a full development of reasons rather than by a mere conclusion coupled with some stereotyped expression." (Emphasis added). The Examiner appears to have ignored the Office's own guidelines by providing no explanation whatsoever for rejecting most of the dependent and independent claims. For example, the Examiner has failed to provide a full and clear ground of rejection for claims 2-9 and 11-30.

Turning now to the claim rejections, claims 1-30 were rejected under 35 U.S.C. §102(e) based on Allen, Jr. *et al.* (U.S. Pat. No. 6,766,285) (hereinafter "Allen"). The rejection is respectfully traversed.

Claim 1 is patentable over Allen at least because this claim recites a method of controlling a track apparatus in a lithocell apparatus arrangement wherein the lithocell apparatus arrangement includes a lithographic exposure apparatus configured to expose substrates and the track apparatus configured to prepare substrates before exposure and develop substrates after exposure, the method comprising, *inter alia*, adjusting a rate at which the track apparatus prepares substrates so that a substrate is prepared in time for acceptance by the lithographic exposure apparatus. Allen does not disclose, teach or suggest these features.

Allen discloses a method and a system for forecasting downstream wafer processing delays within a semiconductor processing facility. (*See* col. 3, lines 15-17). Specifically, Allen discloses that a wafer is processed in a first processing unit at a first location and that a set of processing results are communicated to a second processing unit at a second location. (*See* col. 3, lines 30-45). Allen further discloses that wafer processing by the second processing unit is simulated based on the communicated results in order to determine the availability of the second processing location. *Id.* Allen also discloses that the availability of the second processing unit is communicated to the first processing unit. *Id.*

However, unlike the invention of claim 1, Allen is silent as to adjusting a rate at which the track apparatus (identified by the Office Action as the “first processing application”) prepares substrates so that a substrate is prepared in time for acceptance by the lithographic exposure apparatus (identified by the Office Action as the “first processing application”). To the contrary, Allen merely discloses that if the next processing unit is not ready after processing the wafer at the first processing unit, an operator is informed and the wafer is diverted to a stocker (114, 116). (*See* col. 3, lines 56-67 and col. 4, lines 17-29). Therefore, in Allen, the rate at which the first processing unit prepares the wafers remains constant. Allen merely discloses using a buffer between two processing units when the second processing unit is not ready. As such, Allen does not disclose, teach or suggest each and every feature recited by claim 1 and, as a result, cannot anticipate claim 1.

Furthermore, Applicants respectfully submit that Allen does not disclose, teach or suggest that the first processing location consists of a track apparatus and that the second processing location corresponds to a lithographic exposure apparatus. Allen merely discloses that the various processing locations correspond to different tools such as, etching tool, lithographic tool, CMP tool, deposition tool... As such, by virtue of being silent as to a track apparatus and a lithographic exposure apparatus, as in claim 1, Allen cannot anticipate this claim.

The Examiner contended that a track apparatus is disclosed in Allen at col. 1, lines 5-29. Applicants respectfully disagree. Allen merely discloses a track conveyor but is completely silent as to a track apparatus configured to prepare substrates before exposure and develop substrates after exposure. (*See* the full limitation of claim 1). In Allen, the track conveyor merely conveys wafers from one location to another. Unlike claim 1, however, the track conveyor of Allen is not configured to prepare wafers.

Claims 2-6 are patentable over Allen at least by virtue of their dependency from claim 1 and for the additional features recited therein.

The Examiner indicated that “the simulation would inherently comprise modeling and the modeling would use statistical and empirical data, as well as using the process recipe or schedule in order to make the prediction.” Applicants respectfully disagree with this unsubstantiated statement and point out that “in relying upon the theory of inherency, the examiner must provide a basis in fact and/or technical reasoning to reasonably support the determination that the allegedly inherent characteristics necessarily flow from the teachings of the applied prior art.” (*See* MPEP 2112 citing Ex Parte Levy, 17 U.S.P.Q. 2d 1461, 1464 (Bd. Pat. App. & Inter. 1990)). All that is disclosed in Allen is that a simulation is performed based on the results communicated by the first processing unit. There is no indication in Allen that the predicted time is based on a calculated schedule, statistical data or empirical data. It is respectfully submitted that the Examiner has failed, in the Office Action, to provide rationale or evidence tending to show inherency.

Claim 10 is patentable over Allen for at least similar reasons as provided in claim 1 and for the additional features recited therein. For example, Allen fails to disclose, teach or suggest a device manufacturing method comprising, *inter alia*, adjusting a rate at which the track apparatus prepares substrates so that a substrate is prepared in time to be accepted by said lithographic exposure apparatus. In addition, Allen is silent as to, for example, preparing a substrate for exposure in a track apparatus; and exposing a desired pattern onto the prepared substrate using an associated lithographic exposure apparatus.

Claims 11-17 are patentable over Allen at least by virtue of their dependency from claim 10 and for the additional features recited therein.

Similarly, claim 18 is patentable over Allen for at least similar reasons as provided in claim 1 and for the additional features recited therein. Namely, Allen fails to disclose, teach or suggest a lithocell apparatus arrangement, comprising: an associated track apparatus configured to prepare substrates before exposure and develop substrates after exposure; and

a controller configured to control the exposure of substrates and control a rate at which the track apparatus prepares substrates, wherein the controller is configured to predict times at which said lithographic exposure apparatus will be available to accept a prepared substrate for exposure from the track apparatus and is configured to adjust the track rate so that a substrate is prepared in time for acceptance by said lithographic exposure apparatus. Applicants respectfully note that the Examiner has failed to identify where Allen discloses such a controller. Therefore, Allen cannot anticipate claim 18.

Claims 19-23 are patentable over Allen at least by virtue of their dependency from claim 18 and for the additional features recited therein.

Likewise, claim 24 is patentable over Allen for at least similar reasons as provided in claim 1 and for the additional features recited therein. Namely, Allen fails to disclose, teach or suggest a computer program comprising a computer-readable storage medium having recorded thereon executable instructions that are adapted to control at least part of a lithocell apparatus arrangement, wherein the lithocell apparatus arrangement comprises a track apparatus for preparing substrates for exposure and developing exposed substrates and an associated lithographic exposure apparatus for exposing substrates, the executable instructions comprising, *inter alia*, adjusting a rate at which said track apparatus prepares substrates so that a substrate is prepared in time for acceptance by said lithographic exposure apparatus. Applicants respectfully note that the Examiner has failed to identified where Allen discloses such a computer program. Therefore, Allen cannot anticipate claim 24.

Claims 25-30 are patentable over Allen at least by virtue of their dependency from claim 24 and for the additional features recited therein.

Accordingly, reconsideration and withdrawal of the rejection of claims 1-30 under 35 U.S.C. §102(e) based on Allen are respectfully requested.

Claims 1-30 were rejected under 35 U.S.C. §102(e) based on Fujita (U.S. Pat. No. 6,698,944). The rejection is respectfully traversed.

Claim 1 is patentable over Fujita at least because this claim recites a method of controlling a track apparatus in a lithocell apparatus arrangement wherein the lithocell apparatus arrangement includes a lithographic exposure apparatus configured to expose substrates and the track apparatus configured to prepare substrates before exposure and develop substrates after exposure, the method comprising, *inter alia*, adjusting a rate at which the track apparatus prepares substrates so that a substrate is prepared in time for acceptance

by the lithographic exposure apparatus. Fujita does not disclose, teach or suggest these features.

Fujita discloses an exposure apparatus and a substrate processing unit that are connected via an in-line I/F portion. (*See FIG. 1 and col. 10, lines 46-51*). Fujita further discloses that in order to prevent unnecessary waiting time (loss of time) or delivery failure from occurring upon delivering the wafer W between both parties, the coating/development controller 62 of the C/D 50 side communicates with the loader controller 34 of the exposure apparatus 10, via the communication channel. (*See col. 17, lines 50-56*). Specifically, Fujita discloses that the loader controller 34 sends information to the coating/development controller 62, such as items a. to d. (*See col. 17, lines 65-67 and col. 18, lines 1-10*). Fujita also discloses that the coating/development controller 62 sends information to the loader controller 34, such as items e. to h., so that the next operation that contributes to improving the processing capacity (throughput) can be decided in relation to the wafer carriage, before the exposure apparatus 10 goes onto its next operation. (*See col. 18, lines 53-63*).

However, unlike claim 1, Fujita is silent as to adjusting a rate at which the track apparatus prepares wafers so that a substrate is prepared in time for acceptance by the lithographic exposure apparatus. To the contrary, Fujita merely discloses that if the coating/development controller 62 has to wait a long time, then the coating/development controller 62 can suspend the carriage operation of delivering the wafer W to the exposure apparatus 10 or, if necessary, temporarily house the wafer W into the buffer carrier 120, and perform only the receiving operation of the wafer W from the wafer delivery portion 124B of the in-line delivery portion 114. (*See col. 19, lines 21-29*). Therefore, in Fujita the rate at which the track apparatus prepares the substrate remains constant. Fujita merely discloses withholding the transfer of the wafer from the C/D unit to the exposure unit after the substrate has been prepared, *i.e.* after the pre-exposure steps in the track have been performed, or storing the wafer in a buffer unit after the substrate has been prepared in case the exposure apparatus is not ready. Therefore, Fujita does not disclose, teach or suggest each and every feature recited by claim 1 and, as a result, cannot anticipate claim 1.

Claims 2-6 are patentable over Fujita at least by virtue of their dependency from claim 1 and for the additional features recited therein.

Claim 10 is patentable over Fujita for at least similar reasons as provided in claim 1 and for the additional features recited therein. For example, Fujita fails to disclose, teach or suggest a device manufacturing method comprising, *inter alia*, adjusting a rate at which the

track apparatus prepares substrates so that a substrate is prepared in time to be accepted by said lithographic exposure apparatus.

Claims 11-17 are patentable over Fujita at least by virtue of their dependency from claim 10 and for the additional features recited therein.

Similarly, claim 18 is patentable over Fujita for at least similar reasons as provided in claim 1 and for the additional features recited therein. Namely, Fujita fails to disclose, teach or suggest a lithocell apparatus arrangement, comprising: an associated track apparatus configured to prepare substrates before exposure and develop substrates after exposure; and a controller configured to control the exposure of substrates and control the rate at which the track apparatus prepares substrates, wherein the controller is configured to predict times at which said lithographic exposure apparatus will be available to accept a prepared substrate for exposure from the track apparatus and is configured to adjust the track rate so that a substrate is prepared in time for acceptance by the lithographic exposure apparatus. Therefore, Fujita cannot anticipate claim 18.

Claims 19-23 are patentable over Fujita at least by virtue of their dependency from claim 18 and for the additional features recited therein.

Likewise, claim 24 is patentable over Fujita for at least similar reasons as provided in claim 1 and for the additional features recited therein. Namely, Fujita fails to disclose, teach or suggest a computer program comprising a computer-readable storage medium having recorded thereon executable instructions that are adapted to control at least part of a lithocell apparatus arrangement, wherein the lithocell apparatus arrangement comprises a track apparatus for preparing substrates for exposure and developing exposed substrates and an associated lithographic exposure apparatus for exposing substrates, the executable instructions comprising, *inter alia*, adjusting a rate at which said track apparatus prepares substrates so that a substrate is prepared in time for acceptance by said lithographic exposure apparatus. Applicants respectfully note that the Examiner has failed to identify where Fujita discloses such a computer program. Therefore, Fujita cannot anticipate claim 24.

Claims 25-30 are patentable over Fujita at least by virtue of their dependency from claim 24 and for the additional features recited therein.

Accordingly, reconsideration and withdrawal of the rejection of claims 1-30 under 35 U.S.C. §102(e) based on Fujita are respectfully requested.

New claim 31 defines additional subject matter that is novel and non-obvious over the art of record. New claim 31 is patentable over the art of record at least by virtue of its

dependency from claim 1 and for the additional features recited therein. Accordingly, Applicants respectfully submit that claim 1 is in condition for allowance.

The objections and rejections having been addressed, Applicants respectfully submit that the application is in condition for allowance, and a notice to that effect is earnestly solicited.

If any point remains in issue which the Examiner feels may be best resolved through a personal or telephone interview, please contact the undersigned at the telephone number listed below.

Please charge any fees associated with the submission of this paper to Deposit Account Number 033975. The Commissioner for Patents is also authorized to credit any over payments to the above-referenced Deposit Account.

Respectfully submitted,

PILLSBURY WINTHROP SHAW PITTMAN LLP



E. RICO HERNANDEZ
Reg. No. 47641
Tel. No. 703.770.7788
Fax No. 703.770.7901

ERH/CFL
P.O. Box 10500
McLean, VA 22102
(703) 905-2000